

RPX Gel Free Ribbon Cable Considerations for Underground Applications

AEN181, Revision 1

Corning Optical Communications has products and solutions that can accommodate most installation types. This document will discuss the capabilities of Corning RPX cable when used in underground applications.

Corning's RPX cable is an all-dielectric design with a rectangular profile as compared to traditionally round cable. The RPX Cable may be installed in a duct, direct buried, lashed aerially or in the self-support aerial installation application. This design allows for lower weight, increased fiber density when compared to traditional ADSS cables, and is available in 24, 48, 72, 96, and 144 fiber counts. A cross section view of the cable is shown in Figure 1 below.

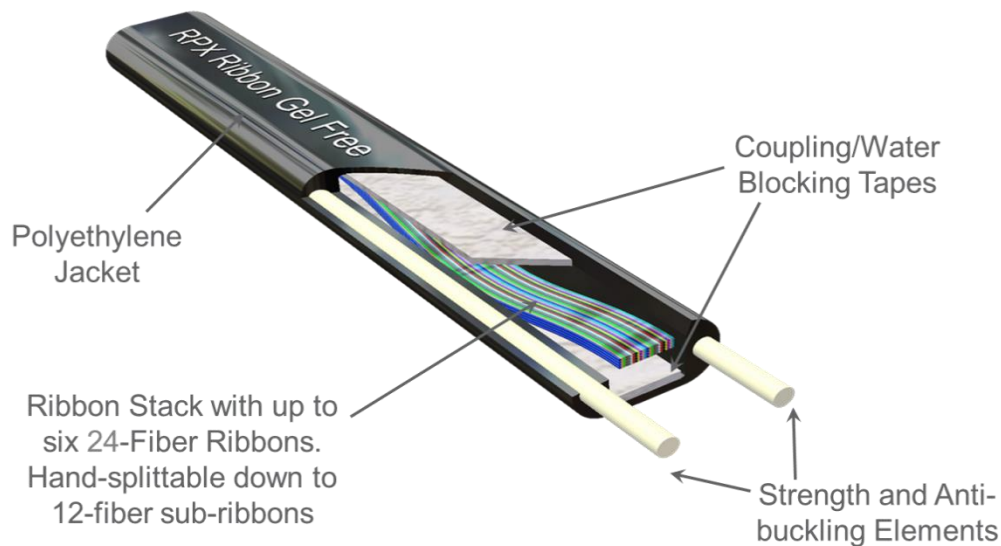


Figure 1. RPX Cable Components

Installation in Duct:

Pulling Installation:

RPX cable can be pulled using standard methods and equipment that is also used for pulling round cables. Reference [SRP 005-011](#) for Corning recommended procedures for pulling cable.

Air-Assisted Installation:

RPX cable can be installed in duct by using air-assisted installation methods. Refer to AE Note 49 for additional information. Manufacturers of jetting/blowing equipment offer seals to fit the rectangular profile of RPX cable (Figure 2).



Figure 2. Plummetaz SuperJet RPX Cable Seals

Contact the jetting/blowing machine manufacturer for more information on availability of RPX seals.

Corning Optical Communications has conducted field trials confirming the blowing capability of RPX cable and achieved distances over 3500 feet. All sizes of RPX cable were installed in both 1-inch and 1.25-inch diameter duct, passing through multiple bends and looped couplings in vaults. Findings of the field trial were that simultaneous gradual application of air pressure and mechanical drive leads to greater installation speeds and distances. The blowing process is the same of that with round cables, however insertion of air earlier in the process is recommended to make a smooth vibration free installation. A cable bullet should be installed on the end of the cable. Bullets used for traditional round cables are acceptable with taping and shaping the end of the cable as needed. (Figure 3)



Figure 3. Bullet on RPX Cable

It is recommended to seal the ends of ducts after installation to prevent water from filling around the cables and freezing which may affect optical performance. More information on ice in ducts can be found in [Applications Engineering Note 159](#).

Slack Storage:

When installing RPX cable, slack may need to be stored at multiple locations. There are three primary methods for installing slack with RPX cable: flip and twist, perimeter of vault, and teardrop. The three methods for slack storage commonly used are described in more detail in [Applications Engineering Note 173](#). Vault size is determined based on the minimum bend diameter of the cable and size of splice enclosures installed. Corning has tested and verified that 75 feet of slack can be stored in a 24-inch by 30-inch vault.

RPX Sheath Access:

RPX cable can be accessed using either the Corning RPX cable access tool or the Ripley MB02 Cable splitter with RPX tray inserts (Figure 4). Sheath access of RPX cable is described in more detail in [SRP 004-115](#).



Figure 4. Ripley MB02 (left) and Corning RPX2-CAT (right)

Table 1: RPX Access Tools

Tool Description	Part Number
Ripley RPX Cable Slitter-Tool with Tray Inserts	MB02-7002
Ripley MB02 Tray Insert Set for RPX Cable (Inserts Only)	MB02-7-0735190
Corning RPX Cable Access Tool with replacement blade	RPX2-CAT
Corning RPX Cable Access Tool replacement blade	RPX2-CAT-BLADE

Splice Enclosure Considerations:

Corning offers solutions for installing RPX in the following splice enclosures:

- SLIC
- SCA
- SCF
- 2178
- FDC

Contact Corning Optical Communications Engineering Services for more information on RPX splice enclosure compatibility.

Note: Other manufacturers should be contacted for details on installing RPX cable in their splice enclosures.

Contact Corning Applications Engineering or your Corning sales representative for more information on RPX installation.